## IV. Remarks

A. Status

Claims 16-33 are pending herein. Paragraphs 0006, 0012, 0016, 0019, 0028, 0034, 0037 and 0039 have been amended to correct certain typographical errors. Claims 17, 24, 26 and 33 have been amended to correct certain typographical errors. No new matter has been added by the amendments to the specification and claims presented herein. The amendments made herein were made to clarify the disclosed and claimed subject matter rather than for purposes of patentability.

Consideration of the following remarks, and allowance of claims 16-33 is respectfully requested.

B. Rejection of Claims 16-17, 22-25 and 30-31 over McGuire

Claims 16-17, 22-25 and 30-31 stand rejected under 35 U.S.C. § 102(b) over McGuire et al., Pharmacology 14(3): 362 (1994) ("McGuire"). Insofar as it may be applied against the present claims, this rejection is respectfully traversed.

As provided in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim...." Therefore, McGuire must disclose all of the elements of the claims to sustain the rejection of claims 16-17, 22-25 and 30-31. However, McGuire does not meet the standard required by MPEP § 2131 because McGuire does not show each and every element of independent claims 16, 22, 23 and 24 or the claims dependent thereon.

Claim 16 is directed to an anti-tumor composition that includes:

(a) an anti-tumor amount of anti-neoplastic agent;

(b) a side effect-reducing amount of a shark cartilage extract; and

(c) a pharmaceutically acceptable carrier.

Claim 22 is directed to an anti-tumor composition that includes:

(a) a sub-optimal dosage amount of an anti-neoplastic agent;

(b) a side effect-reducing amount of a shark cartilage extract; and

(c) a pharmaceutically acceptable carrier that is an aqueous solution,

wherein administration of the anti-tumor composition causes less side effects than administration of a similar composition that does not contain shark cartilage extract.

Claim 23 is directed to an anti-tumor composition that includes:

(a) an optimal dosage amount of an anti-neoplastic agent;

(b) a side effect-reducing amount of a shark cartilage extract; and

(c) a pharmaceutically acceptable carrier that is an aqueous solution,

wherein administration of the anti-tumor composition causes less side effects than administration of a similar composition that does not contain shark cartilage extract.

Claim 24 is directed to an anti-tumor treatment kit that includes:

(a) a first composition comprising a pharmaceutical dosage of an anti-neoplastic agent; and

(b) a second composition comprising a side effect-reducing amount of a shark cartilage extract.

McGuire discloses that human umbilical vein endothelial cells (HUVEC) were incubated for 24 hours with shark cartilage and tamoxifen combinations and that H3-thymidine uptake (a measure of angiogenesis) by such cells was reduced by shark cartilage and tamoxifen. McGuire concludes that "[t]hese data suggest that tamoxifen has significant anti-angiogenic activity that can be potentiated by shark cartilage. Combination therapy may be effective in preventing or treating solid tumors."

It is noted that claims 17 and 26 do not include tamoxifen as a possible anti-neoplastic agent. Therefore, claims 17 and 26 cannot be anticipated by McGuire. In addition, the scant disclosure of McGuire does not suggest that tamoxifen can or should be replaced with one or more of the anti-neoplastic agents recited in claims 17 and 26. Accordingly, claims 17 and 26 are clearly patentable over the disclosure of McGuire.

In addition, McGuire is not enabling for an anti-tumor composition that includes a side effect-reducing amount of a shark cartilage extract. Moreover, McGuire is not enabling for a

pharmaceutical dosage of a combination of an anti-neoplastic agent and a shark cartilage extract. Specifically, McGuire discloses *in vitro* results and those results are based on one cell type only: HUVECs. McGuire discloses that a combination of a specific anti-angiogenic agent, namely tamoxifen, an anti-estrogen used to inhibit estrogen-dependent cancers or tissues (i.e. breast cancer), and a cartilage extract is effective on HUVEC cells. The effect disclosed is simply additive in an angiogenic in vitro model: it is the sum of the effect of each component of the combination taken individually. McGuire does not disclose or suggest an *in vivo* dosage which would constitute a side-effect reducing amount, a pharmaceutical dose or a protective dose. It is known that *in vitro* dosages significantly differ from *in vivo* dosages. The authors of McGuire themselves admit that the results that they disclose are not in and of themselves sufficient to predict that the combination tamoxifen/cartilage extract may prevent or treat solid tumors (see McGuire's conclusion). McGuire is absolutely devoid of any disclosure of a side-effect reducing amount. It is therefore respectfully submitted that the subject matter of claims 16-17, 22-25 and 30-31 is not disclosed or suggested by McGuire.

Furthermore, McGuire does not disclose or suggest a combination comprising an optimal dosage amount of an anti-neoplastic agent as recited in claim 23. At optimal dosage amounts (namely the amount that is most effective for reducing tumors) anti-neoplastic agents are known to have undesirable side effects (e.g. weight decrease and white blood cell decreases among others). For this reason, they have been traditionally administered at sub-optimal dosage amounts. The Applicant is the first to demonstrate that shark cartilage extract protects against such anti-neoplastic side effects. Indeed shark cartilage extract protects patients against weight decrease: patients lose less weight when they are co-administered shark cartilage with an anti-neoplastic agent then when they are administered an anti-neoplastic agent alone (see Table 2, at page 8 of the specification). Similarly, shark cartilage extract protects against white blood cell decrease (see Table 3, at page 10 of the specification). The Applicant is therefore the first to disclose a combination comprising shark cartilage extract and an optimal dosage of anti-neoplastic. It is therefore respectfully submitted that claim 23 is not disclosed or suggested by McGuire.

Accordingly, the rejections of claims 16, 22, 23 and 24 are improper as not supported by the art because McGuire does not show each and every element of these independent claims. As

to the other claims rejected over McGuire, i.e. claims 17, 25 and 30-31, each claim depends directly or indirectly from one of claims 16, 22, 23 and 24. Thus, the rejection of the dependent claims based on McGuire are also improper for at least the same reasons as applied to claims 16, 22, 23 and 24.

In view of the foregoing, it is respectfully requested that the rejection of claims 16-17, 22-25 and 30-31 under 35 U.S.C. §102(b) over McGuire be withdrawn.

C. Rejection of Claims 16-17, 19-20, 22-26, 28-31 and 33 over Dupont

Claims 16-17, 19-20, 22-26, 28-31 and 33 stand rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,618,925 to Dupont et al. ("Dupont"). Insofar as it may be applied against the present claims, this rejection is respectfully traversed.

As provided in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim...." Therefore, Dupont must disclose all of the elements of the claims to sustain the rejection of claims 16-17, 19-20, 22-26, 28-31 and 33. However, Dupont does not meet the standard required by MPEP § 2131 because Dupont does not show each and every element of independent claims 16, 22, 23 and 24 or the claims dependent thereon.

Claims 17 and 26 have been amended to specify that the anti-neoplastic agent included in the anti-tumor composition of claim 16 and the anti-tumor treatment kit of claim 24 may include "radiotherapeutics" rather than "radiotherapy". Attached for the Examiner's convenience are copies of information that disclose such radiotherapeutic materials. Accordingly, contrary to the Office action, Applicant has not defined radiotherapy as falling within the meaning of the term "anti-neoplastic agent." Therefore, the basis upon which claims 16-17, 19-20, 22-26, 28-31 and 33 were rejected under 35 U.S.C. § 102(b) over Dupont has been shown to be erroneous. In view of the foregoing, it is respectfully requested that the rejection of claims 16-17, 19-20, 22-26, 28-31 over Dupont be withdrawn.

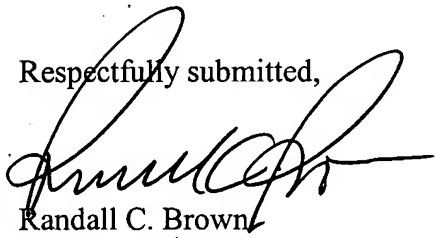
D. Allowable Subject Matter: Claims 18, 21, 27 and 32

Applicant appreciates the indication of the allowability of claims 18, 21, 27 and 32. Applicant respectfully submits that in light of the foregoing amendments and remarks, all of claims 16-33 are in condition for allowance.

E. Conclusion

In view of the foregoing, an early formal notice of allowance of claims 16-33 is respectfully requested. If the Examiner has any questions, she is invited to call the undersigned at the telephone number listed below.

Respectfully submitted,



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